

WHAT IS CLAIMED IS:

1. An electrostatic actuator mechanism,
comprising:

5 a first stator provided with an electrode group
including at least three electrodes successively
arranged in a predetermined direction, voltage being
applied to the electrodes in different order;

10 a second stator arranged to face the first stator
and provided with a planar electrode extending in the
predetermined direction;

15 a movable member arranged between the first stator
and the second stator, and provided with a first
electrode section facing the electrode group and a
second electrode section facing the planar electrode;
and

20 a switching circuit configured to apply voltage
alternately to the electrode group and the planar
electrode, the potential of any of the electrodes
forming the electrode group being rendered higher than
the potential of the first electrode section, or the
potential of the planar electrode being rendered higher
than the potential of the second electrode section, and
to switch the order of applying voltage successively to
the first electrode group.

25 2. The electrostatic actuator mechanism according
to claim 1, wherein, when voltage is applied to the
electrode group, the switching circuit applies voltage

simultaneously to at least two electrodes adjacent to each other in the predetermined direction.

3. The electrostatic actuator mechanism according to claim 1, wherein the width in the predetermined
5 direction of the first electrode section mounted to the movable member is 1.5 to 2.5 times as much as the width in the predetermined direction of each of the electrodes forming the electrode group.

4. The electrostatic actuator mechanism according
10 to claim 1, further comprising a dielectric film formed to cover the electrode group.

5. The electrostatic actuator mechanism according to claim 4, further comprising a circuit configured to
15 impair a potential difference such that the potential of the electrode group is rendered lower than the potential of the first electrode section, when voltage is applied to the planar electrode.

6. The electrostatic actuator mechanism according to claim 1, further comprising a dielectric film formed
20 to cover the first electrode section.

7. The electrostatic actuator mechanism according to claim 6, further comprising a circuit configured to
25 impair a potential difference such that the potential of the electrode group is rendered lower than the potential of the first electrode section, when voltage is applied to the planar electrode.

8. The electrostatic actuator mechanism according

to claim 6, wherein the first and second electrode sections bear substantially the ground potential.

9. The electrostatic actuator mechanism according to claim 1, wherein the movable member further
5 comprises an optical element that is driven together with the movable member.

10. The electrostatic actuator mechanism according to claim 1, wherein the first and second stators
10 comprise stoppers projecting from the upper surfaces of the electrode group and the planar electrode, and the movable member is provided with regions in which the stoppers are slid, the region being formed on the surfaces on which the first and second electrode sections are formed.

15 11. The electrostatic actuator mechanism according to claim 1, wherein the movable member comprises stoppers projecting from the surfaces of the first and second electrode sections, and the first and second stators are provided with regions in which the stoppers
20 are slid, the regions being formed on the surfaces on which the electrode group and the planar electrode are formed.

12. The electrostatic actuator mechanism according to claim 1, wherein the electrode group includes three
25 electrodes to which voltage is applied in a different order.

13. The electrostatic actuator mechanism according

to claim 1, wherein the electrode group includes four electrodes to which voltage is applied in a different order.

14. A method of driving an electrostatic actuator
5 mechanism including a first stator having an electrode group including at least three electrodes successively arranged in a predetermined direction, voltage being applied to the electrodes in different order, a second stator arranged to face the first stator and having a
10 planar electrode extending in the predetermined direction, and a movable member arranged between the first stator and the second stator and having a first electrode section facing the electrode group and a second electrode section facing the planar electrode,
15 the method comprising:

applying voltage to the electrode group, the potential of any of the electrodes forming the electrode group being rendered higher than the potential of the first electrode section;

20 applying voltage to the planar electrode, the potential of the planar electrode being rendered higher than that of the second electrode section;

applying voltage by switching the electrode of the first electrode group such that the potential of the
25 switched electrode is rendered higher than the potential of first electrode section;

applying voltage such that the potential of the

planar electrode is rendered higher than the potential of the second electrode section; and

repeating the voltage application defined above.

15 15. The method of driving an electrostatic actuator mechanism according to claim 14, wherein, when voltage is applied to the electrode group, voltage is applied simultaneously to at least two electrodes adjacent to each other in the predetermined direction.

10 16. The method of driving an electrostatic actuator mechanism according to claim 14, wherein, when voltage is applied to the planar electrode, a potential difference is imparted such that the potential of the first electrode group is rendered lower than the potential of the first electrode section.

15 17. A camera module, comprising:
a image pick-up element; and
an electrostatic actuator mechanism mounted to the image pick-up element, the electrostatic actuator mechanism including;

20 a first stator provided with an electrode group including at least three electrodes successively arranged in a predetermined direction, voltage being applied to the electrodes in different order,

25 a second stator arranged to face the first stator and provided with a planar second electrode extending in the predetermined

direction,

5 a movable member arranged between the first stator and the second stator, and provided with a first electrode section facing the electrode group, a second electrode section facing the planar electrode, and an optical element configured to form an optical image on the image pick-up element, and

10 a switching circuit configured to apply voltage alternately to the electrode group and the planar electrode, the potential of any of the electrodes forming the electrode group being rendered higher than the potential of the first electrode section, or the potential of the planar electrode being rendered higher than the
15 potential of the second electrode section, and to switch the order of applying voltage successively to the electrode group.

18. The camera module according to claim 17,
20 wherein the switching circuit simultaneously applies voltage to at least two electrodes adjacent to each other in the predetermined direction, when voltage is applied to the electrode group.

19. The camera module according to claim 17,
25 wherein the width in the predetermined direction of the first electrode section mounted to the movable member is 1.5 to 2.5 times as much as the width in the

predetermined direction of each of the electrodes forming the electrode group.

20. The camera module according to claim 17,
further comprising a dielectric film formed to cover
5 the electrode group.

21. The camera module according to claim 20,
further comprising a circuit configured to impair a
potential difference such that the potential of the
electrode group is rendered lower than the potential of
10 the first electrode section, when voltage is applied to
the planar electrode.

22. The camera module according to claim 17,
further comprising a dielectric film formed to cover
the first electrode section.

15 23. The camera module according to claim 22,
further comprising a circuit configured to impair a
potential difference such that the potential of the
electrode group is rendered lower than the potential of
the first electrode section, when voltage is applied to
20 the planar electrode.